

REMARKS/ARGUMENTS

Applicants' undersigned counsel thanks Examiner Mulpuri for the continued careful examination of the present application.

Claims 3 and 4 have been amended to make clear that the first doped layer remains in the reaction chamber during the dosing step. Basis for this amendment can be found in the specification as-filed, e.g. at page 5, where it is disclosed that the "internal surfaces of the reactor *and the substrate* are dosed with a vapour or gas."

The Examiner has indicated that the last Office action is in response to "applicant's communication amending the claims, filed on 3/31/2006." This refers to the Amendment "D" that was filed after-final under Rule 1.116, which was never entered. Therefore, applicants have also resubmitted the amendment to claim 16 that was presented in Amendment "D" to ensure its entry in the application.

Currently, claims 3 and 4 stand rejected under 35 USC § 103(a) as being obvious over Catalano in view of either Satoh (claim 3) or Moon (claim 4). As before, the Examiner has acknowledged that Catalano does not disclose the specific dosing compounds recited in claims 3 and 4, respectively, and has relied on the secondary references to supply the missing teachings. The rejections are respectfully traversed.

Regarding claim 3, the Examiner has said the following regarding Satoh:

Satoh et al teaches cleaning the substrate or chamber walls by using water vapor to remove doping byproducts without damaging the chamber walls or the surface of the substrate. (see abstract)
Office action, page 3.

Respectfully, the Examiner is incorrect. First, Satoh does not use water vapor to clean the chamber, but *a plasma of a water-containing gas*. See Abstract, referring to "plasmanizes the water containing gas." See also whole specification of Satoh, e.g. paragraph [0019], which states: "the present invention is characterized in that *plasma* of water vapor...or a water containing carrier gas is used for removing the by-product." As further described in that

paragraph, as a result of using a *plasma*, cleaning time can be reduced ten times, owing to the aggressive cleaning power of plasmanized water vapor.

Second, Satoh does not mention using the disclosed water vapor plasma to “clean the substrate” as the Examiner has suggested. To the contrary, in Satoh it is disclosed that the plasma cleaning step actually removes the (doped) layer previously deposited on a silicon substrate. See paragraphs [0041]-[0043], describing deposition of an amorphous boron film 111 on a silicon substrate 52, and that such film is subsequently “approximately completely removed” by the plasma treatment. See also Figs. 4A-4C in conjunction with these paragraphs in Satoh, wherein it is illustrated that the deposited layer 111 is removed by the aggressive plasma treatment.

Accordingly, not only does the combination of Satoh and Catalano not disclose the invention of claim 3, but the skilled artisan would not even consider the combination to arrive at the claimed invention because the treatment in Satoh would likely damage, if not remove, the first doped layer in claim 3. Claim 3 has been amended to make clear that the first doped layer remains in the reaction chamber during the intermediate treatment step between deposition steps. Accordingly, for the foregoing reasons, it is respectfully submitted that the rejection of claim 3 is overcome.

Regarding claim 4, the Examiner has relied on Moon to suggest using ammonia to clean the reaction chamber in between layer deposition steps in Catalano. However, just like Satoh above, Moon uses a plasma to clean the chamber. Moreover, Moon clearly illustrates that the substrate is to be removed prior to conducting the plasma cleaning, see Fig. 2, lest any deposited layer therein would be damaged. Again, claim 4 has been amended to clarify that the first doped layer remains in the reaction chamber during the intermediate treatment step. Accordingly, for at least the foregoing reasons, the rejection of claim 4 also is believed to be overcome on the merits.

Moreover, it is noted that the present application claims priority from three provisional applications, two of which are dated October 25, 2002 and January 13, 2003, respectively. Both these dates are before the U.S. filing date of the Moon reference. Therefore, the Moon reference is believed not to be 102(a) or (e) prior art against the present application. Clearly it is not 102(b) prior art, as it did not issue or publish more than a year prior to the priority date or even

the filing date for the present utility application. For these reasons as well, it is submitted the rejections based on Moon should be withdrawn.

In view of the foregoing, it is respectfully submitted that claims 3 and 4 are now in condition for allowance. All remaining claims are dependent claims, and accordingly are believed allowable as such. Should the Examiner have any questions or concerns about the instant submission, or for any other reason to advance the prosecution hereof, the Examiner is invited and requested to please contact the undersigned attorney at the phone number listed below.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 16-0820, our Order No.35121US1.

Respectfully submitted,
PEARNE & GORDON, LLP

By: 
Steven J. Solomon, Reg. No. 48719

1801 East 9th Street
Suite 1200
Cleveland, Ohio 44114-3108
(216) 579-1700

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